REMARKS

By the foregoing amendment, claims 1 and 2 have been combined and a new claim has been presented for consideration.

Claims 1-13 have been rejected as being obvious over Kodas either alone or in combination with Rosencwaig. It is respectfully submitted that these rejections should be withdrawn.

The broadest claim under consideration relates to a method of manufacturing glass powder having a desired average particle size which, as pointed out on page 2, is solid and spherical. It involves spray-thermally decomposing, using radiant heat, a mixed solution which contains (1) a glass network-forming element raw material oxide powder having an average particle size which does not exceed about 1/5 of the average particle size of the desired glass powder and (2) an aqueous solution of a water soluble compound of a different glass-forming element. The radiant heat spray thermal decomposition is effected at a thermal decomposition temperature which varies depending on the relative amount of the raw material oxide powder based on the total of the powder and the water soluble compound and the average particle size of the powder. When the relative amount of the oxide powder is less than 45% by weight, then the decomposition temperature is above the melting point of the glass by either about 20°C or 50°C depending on whether the raw material oxide powder average particle size is less or more than 1/25th of the average particle size of the powder. When the amount of the raw material oxide powder is more than about 45% by weight, then the spray thermal decomposition temperature is at least the melting point of the glass powder or the melting point plus 30°C depending on whether the powder is less or more than 1/25th of the average particle size of the glass powder. The claimed

process is not obvious over Kodas, whether considered alone or in combination with Rosencwaig.

The Kodas patent relates to a method of producing a glass powder by spray pyrolysis. In a description which extends over 38 columns, the process involves generating an aerosol and then subjecting the aerosol to spray pyrolysis in a furnace. A feed of a liquid containing flowable medium containing at least one precursor of the glass is converted to aerosol form with droplets of the medium being dispersed in and suspended by a carrier gas. While the reference indicates that product may be solid or hollow, it does not indicate the steps necessary to achieve a solid product. This is particularly relevant since the prior art teaches that processes employing radiant heat produce hollow glass particles. Thus, one skilled in the art would not employ radiant heat if that person was trying to use the Kodas teachings to achieve a solid sphere. The applicants found that when employing radiant heat, solid spherical glass particles could be realized if the parameters recited in the claims are observed. This is surprising and unexpected.

The Kodas flowable liquid can contain suspended particles, such as colloidal silica particles, which are typically smaller than about one μm in size, preferably smaller than about 0.5 μm, more preferably smaller than about 0.3 μm and most preferably smaller than about 0.1 μm in size. The final glass particles can range in size from about 0.05 μm to 20 μm. That means that theoretically the particle size ratio of particulate to glass can range from the 20:1 to 1/0.005. There is obviously an extremely large number of ratios that one skilled in the art can select within this range and there is nothing in Kodas which suggests one skilled in the art to make the raw material powder particle size 1/5 of the average particle size of the resulting glass powder, or less, as opposed to a different value, and particularly when radiant heat is being employed.

There is also nothing in Kodas which teaches or suggested to one of ordinary skill in the art that the selected pyrolysis temperature should vary depending on the relative amount of the raw material oxide powder based on the total of the powder and the amount of the water soluble compound in the aqueous solution (calculated as oxide) when the raw material powder particle size is 1/5 or less of the average particle size of the resulting glass powder. Reference has been made in the Office Action to Tables I and II to show the silica concentration can be above or below 45%. However, neither of those tables, nor anything else in the Kodas patent, teaches or suggests that the pyrolysis temperature should be selected as a function of the powder content in a precursor composition in order to made solid spheres when radiant heat is applied.

Kodas teaches a pyrolysis temperature which can range from 300° to 1500°C. However, nothing in the reference teaches or suggests that the temperature selected should be based on whether or not the raw material powder is less than or greater than 45% of the combination with the water soluble compound and also a function of whether the raw material oxide powder has an average particle size of more or less than 1/25th of the average particle size of the solid spherical glass powder being produced. It is apparent from the foregoing that one skilled in the art can theoretically practice a method either inside or outside the scope of the instant claims depending on the selections made. But is no teaching or suggestion in Kodas that a concentration value of the raw material oxide powder of 45% is significant, particularly when radiant heat is being employed. Nor is there a teaching that a particle size of 1/25th of the particle size of the desired product is significant with regard to the selected temperature. Kodas does have a broad teaching that results can be affected by adjusting the process parameters but that is simply an invitation to experiment. Kodas

points to factors other than the concentration and size of the oxide powder as being important.

With respect to claims 8, 9, 12 and 15, Kodas teaches away from the invention of these claims by pointing out that when the liquid feed contains suspended particles, those particles comprise not greater than about 15% of the feed (see col. 5, lines 49-51).

Rosencwaig reference has apparently been cited to show that the temperature in a multi-stage oven varies by stages. Such a teaching does not cure the basic deficiencies in Kodas.

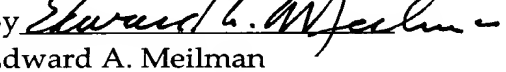
The process claimed does, as shown in the working examples, result in solid spherical particles when radiant heat is employed and a Declaration attesting to those examples is enclosed herewith. This result is surprising and unexpected. Nothing in the references teaches or suggests that the combination of parameters should be selected to realize this result. At best, it teaches various values are within the realm of possibility in the context of broadly making a glass powder by spray pyrolysis. The art is at best an invitation to experiment and does not render the claimed invention obvious.

Acknowledgment of the IDS filed on November 30, 2004 and return of a initialed SB/08 is respectfully requested.

In light of all of the foregoing, it is respectfully submitted that this application is now in condition to be allowed and the early issuance of a Notice of Allowance respectfully solicited.

Dated: May 16, 2005

Respectfully submitted,

By 

Edward A. Meilman
Registration No.: 24,735
DICKSTEIN SHAPIRO MORIN &
OSHINSKY LLP
1177 Avenue of the Americas
41st Floor
New York, New York 10036-2714
(212) 835-1400
Attorney for Applicant